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| EXAMINER | |
|---|---|
| OH, TAYLOR V | |
| **ART UNIT** | **PAPER NUMBER** |
| 1625 | |

| SHORTENED STATUTORY PERIOD OF RESPONSE | NOTIFICATION DATE | DELIVERY MODE |
|---|---|---|
| 3 MONTHS | 02/27/2007 | ELECTRONIC |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 02/27/2007.

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| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/608,466 | VERTESY ET AL. | |
| | Examiner | Art Unit | |
| | Taylor Victor Oh | 1625 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *27 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-16 and 18-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-16,18,19 and 23* is/are allowed.

6)☒ Claim(s) _____ is/are rejected.

7)☐ Claim(s) *20-22* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

***Final Rejection***

**The Status of Claims**

Claims 1-16 and 18-23 are pending.

Claims 20-22 have been rejected.

Claims 1-16, 18-19 and 23 are allowable.

**Claim Rejections-35 USC 112**

1. Applicants' argument filed 11/27/04 have been fully considered but they are not persuasive.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The rejection of claims 20-21 under 35 U.S.C. 112, first paragraph, has been maintained due to applicants' failure to modify the claims in the amendment.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

The rejection of Claim 20 under 35 U.S.C. 112, second paragraph, has been maintained due to applicants' failure to modify the claim in the amendment.

Due to the revised claim 22, it becomes necessary to give the rejection of claim 22 under35 U.S.C. 112, first paragraph as shown below.

Claim 22 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for some anti-bacterial infections does not reasonably provide enablement for all the anti-bacterial infections ,such as Bacillus subtilis . Although the claims are directed to the general anti-bacterial treatment of in a patient in need, the specification falls short because data essential for treating all kinds of anti-bacterial infections by means of administering the compounds of serpentemycins is not described in the specification.

In *In re Wands*, 8 USPQ2d 1400 (1988), factors to be considered in determining whether a disclosure meets the enablement requirement of 35 U.S.C. § 112, first paragraph, have been described. They are:

1. the nature of the invention,
2. the state of the prior art,
3. the predictability or lack thereof in the art,
4. the amount of direction or guidance present,
5. the presence or absence of working examples,
6. the breadth of the claims,
7. the quantity of experimentation needed, and
8. the level of the skill in the art.

**The Nature of the Invention**

The nature of the invention in claim 22 is the process for producing a pharmaceutical composition for treating bacterial disease the compounds of serpentemycins of formula (V).

**The State of the Prior Art**

The state of the prior art is the followings:

**[0005]** A relatively large number of polyene antibiotics, most of which are macrolides, that is their structures belong to the macrocyclic structure type, have already been described. These macrolides act antimycotically by means of interactions with biological membranes, and are, therefore, toxic to warm-blooded animals (homeotherms). The most important representative of this antibiotic type is amphotericin B, which is used as a therapeutic agent in humans despite its toxicity. An example of a nonmacrocyclic polyene antibiotic which has been described (Ritzau et al., Liebigs Ann. Chem. 1993, 433-435) is serpentene, which contains a phenyl ring which is substituted in the 1,2 position by polyene side chains. In tests directed against Gram-positive and Gram-negative bacteria, serpentene only exhibited a weak antibiotic effect against *Bacillus subtilis*.

From this, there is no conclusive evidence that the serpentemycins of formula (V) can treat all the known bacterial diseases.

**The predictability or lack thereof in the art**

The instant claimed invention is highly unpredictable as discussed below:

It is noted that the pharmaceutical art is unpredictable, requiring each embodiment to be individually assessed for physiological activity. In re Fisher, 427 F.2d

833, 166 USPQ 18 (CCPA 1970) indicates that the more unpredictable an area is, the more specific enablement is necessary in order to satisfy the statute. In the instant case, the instant claimed invention is highly unpredictable since one skilled in the art would recognize that the application of the serpentemycins of formula (V) would result in only the specific sites of the celluar membranes; this kind of treatment can not translated to the possible treatment of all the known bacterial diseases.

Hence, in the absence of a showing of correlation among all the known bacterial diseases claimed as capable of treatment by the compound of the serpentemycins of formula (V), one of skill in the art is unable to fully predict possible results from the administration of the claimed serpentemycins of formula (V) due to the unpredictability of the role of the serpentemycins of formula (V), i.e. whether the serpentemycins of formula (V) would be useful in treating all the known bacterial diseases.

The nature of pharmaceutical arts is that it involves screening *in vitro* and *in vivo* to determine which compounds exhibit the desired pharmacological activities. There is no absolute predictability even in view of the seemingly high level of skill in the art. The existence of these obstacles establishes that the contemporary knowledge in the art would prevent one of ordinary skill in the art from accepting any therapeutic regimen on its face.

**The amount of direction or guidance present**

The direction present in the instant specification is that the serpentemycins of formula (V) can treat some gram positive and gram negative bacteria. However, the specification is silent and fails to provide guidance as to whether all the bacterial

infections require the presence of the serpentemycins of formula (V) for treatment, i.e. the specification fails to provide a correlation between those bacterial infections and the the serpentemycins of formula (V) that would lead to the direction and guidance for treatment of any kinds of bacterial infections.

**The presence or absence of working examples**

There are some working examples using the culture of Actinomycetales to see the effectiveness of the anti-bacterial treatment . Furthermore, there are working examples for fluorescence intensity measurement of the serpentemycins of formula (V). However, the serpentemycins of formula (V) which is disclosed in the specification has no pharmacological data regarding the treatment of all kinds of bacteria besides the culture of Actinomycetales (see pages 17-19 ,examples 1-5 ) . Also, the specification fails to provide enough working examples as to how all kinds of the bacterial disease can be treated by the application of the serpentemycins of formula (I) ,i.e. again, there is no correlation between the abnormalities of the urinary bladder and the application of the serpentemycins of formula (V).

**The breadth of the claims**

The breadth of the claims is that the serpentemycins of formula (V) can treat all kinds of the bacterial disease , without sufficient evidence to prove the applicability of the serpentemycins of formula (V) to all kinds of the bacterial disease .

**The quantity of experimentation needed**

The quantity of experimentation needed is undue experimentation. One of skill in the art would need to determine what the all kinds of the bacterial disease would be benefited by the application of the serpentemycins of formula (V) would furthermore then have to determine whether the claimed compound would provide the treatment for all kinds of the bacterial disease.

**The level of the skill in the art**

The level of skill in the art is high. However, due to the unpredictability in the pharmaceutical art, it is noted that each embodiment of the invention is required to be individually assessed for physiological activity by in vitro and in vivo screening to determine whether or not the serpentemycins of formula (V) exhibits the desired pharmacological activity and which diseases would benefit from this activity.

Thus, the specification fails to provide sufficient support of the broad use of the the serpentemycins of formula (V) for the treatment of any baterial infections. As a result, necessitating one of skill to perform an exhaustive search for which diseases can be treated by the serpentemycins of formula (V) in order to practice the claimed invention.

Genentech Inc. v. Novo Nordisk A/S (CA FC) 42 USPQ2d 1001 , states that " a patent is not a hunting license. It is not a reward for search , but compensation for its successful conclusion" and "[p]atent protection is granted in return for an enabling

disclosure of an invention, not for vague intimations of general ideas that may or may not be workable".

Therefore, in view of the Wands factors and In re Fisher (CCPA 1970) discussed above, to practice the claimed invention herein, a person of skill in the art would have to engage in undue experimentation to test which diseases can be treated by the compound encompassed in the instant claims, with no assurance of success.

**Claim Rejections-35 USC 102**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

The rejection of Claims 1-4, 7, and 9 under 35 U.S.C. 102(a) as being anticipated clearly by Darby et al (J. of Organic Chemistry, 1977,42(11), p.1960-7) has been withdrawn due to applicants' convincing argument.

**Applicants' Argument**

2. Applicants argue the following issues:

a. The rejection of claims 20-21 under 35 U.S.C. 112, first and second paragraphs are simply unsupportive conclusions without any attempt to establish the knowledge of one skilled in the art regarding their enablement or the clarity of the phrase " antibacterially effective amount".

The applicants' argument have been noted, but these arguments are not persuasive.

First, with respect to the argument, the Examiner has noted applicants' argument. However, after reviewing *In re Wands*, 8 USPQ2d 1400 (1988), factors :

1. the nature of the invention,
2. the state of the prior art,
3. the predictability or lack thereof in the art,
4. the amount of direction or guidance present,
5. the presence or absence of working examples,
6. the breadth of the claims,
7. the quantity of experimentation needed, and
8. the level of the skill in the art

to be considered in determining whether a disclosure meets the enablement requirement of 35 U.S.C. § 112, first paragraph, the specification falls short because data essential for treating all kinds of anti-bacterial infections by means of administering the compounds of serpentemycins is not described in the specification. Therefore, applicants' argument is irrelevant to the issues of the claimed invention.

With respect to the unclarity of the phrase " antibacterially effective amount", the specification does not elaborate what is meant by the phrase " an antibacterially effective amount". Therefor, an appropriate correction is still required.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Taylor Victor Oh whose telephone number is 571-272-0689. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas McKenzie can be reached on 571-272-0670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Taylor Victor Oh, MSD,LAC
Primary Examiner
Art Unit : 1625

*** 2/19/07